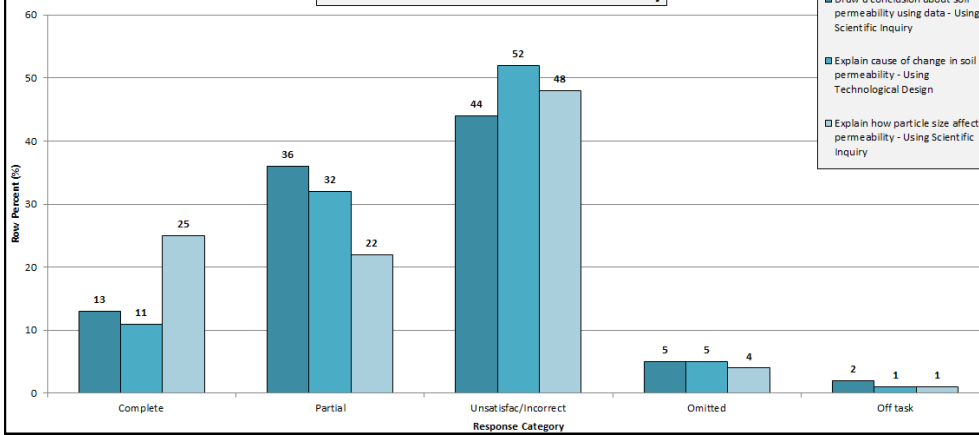


Montana 2011 Grade 8 Science Results

Grade 8 2011 CR Item- Soil Permeability



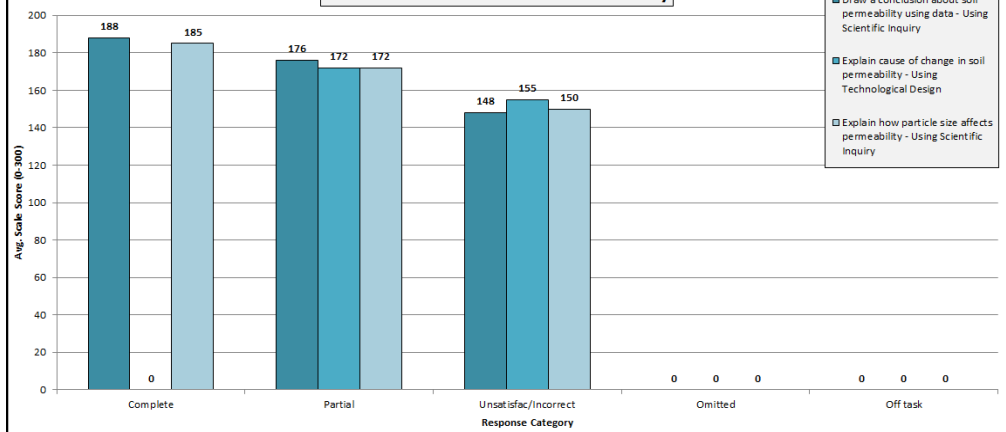
West Region States:

- Alaska
- Arizona
- California
- Colorado
- Hawaii
- Idaho
- Montana
- Nevada
- New Mexico
- Oregon
- Utah
- Washington
- Wyoming

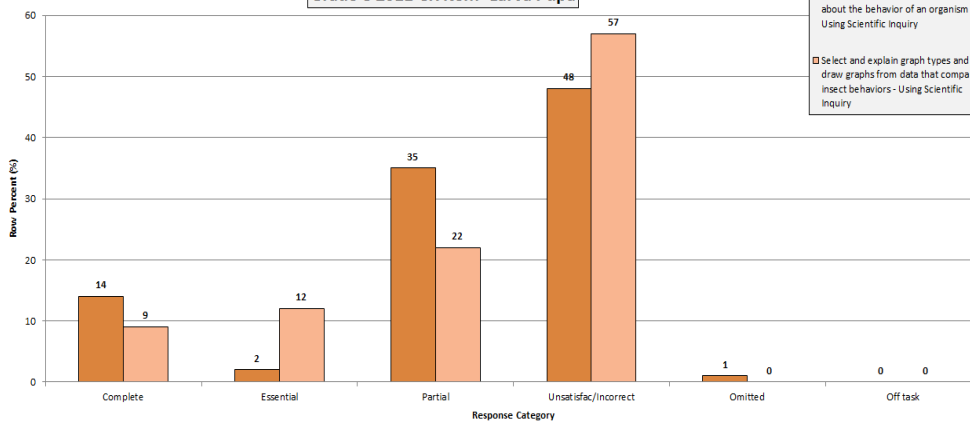
Draw a conclusion about soil permeability using data:

24% of Washington students, 17% of Colorado students, 12% of Wyoming students and 9% of Idaho students were *likely* to give a “complete” response.

Grade 8 2011 CR Item- Soil Permeability



Grade 8 2011 CR Item- Larva Pupa



Explain how particle size affects permeability:

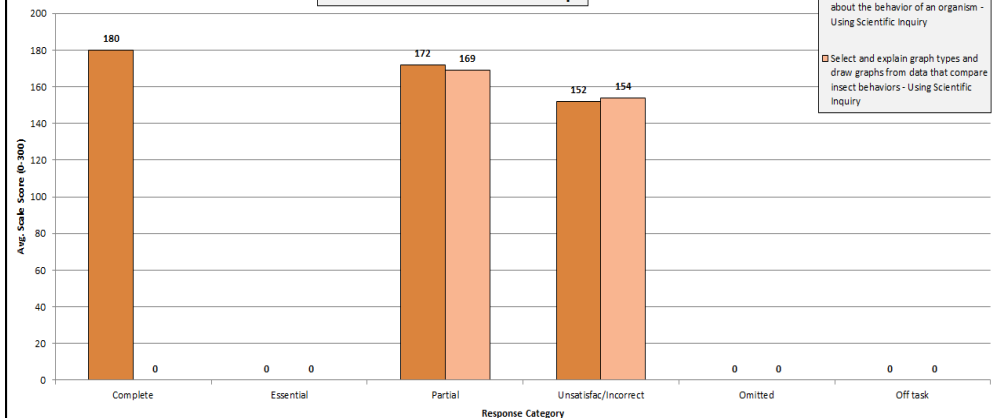
25% of Montana students, 22% of Wyoming students, 22% of Idaho students, 21% of Utah students, 21% Colorado students and 21% Washington students were *likely* to give a “complete” response.

Form a conclusion based on data about the behavior of an organism:

30% of Washington students, 22% of Wyoming students, 21% of Colorado students, and 16% of Oregon students were *likely* to give a “complete” response.

Note: Observed differences may not be statistically significant. For items on an item map each question represents the probability that, at any given score point, 65 percent of the students for a constructed-response question answered that question successfully. <http://www.nces.ed.gov>

Grade 8 2011 CR Item- Larva Pupa



Content Classifications:

Earth & Space Sciences

Physical Science

Life Science

- 300
- 290
- 287 Predict and explain a weather pattern due to collision of air masses—Complete (CR)
- 280
- 270
- 269 Describe the evidence for chemical change—Complete (CR)
- 265 Identify chemically similar elements in the Periodic Table (MC)
- 264 Select and explain graph types and draw graphs from data that compare insect behaviors—Complete (CR)
- 260
- 256 Explain the formation of a rock based on its features—Complete (CR)
- 250
- 247 Form a conclusion based on data about the behavior of an organism—Complete (CR)
- 240
- 231 Select and explain graph types and draw graphs from data that compare insect behaviors—Essential (CR)
- 230
- 224 Explain a change in energy due to friction (MC)
- 221 Draw a conclusion about soil permeability using data—Complete (CR)
- 220
- 215 **Advanced**
- 214 Explain the effects of human land use on wildlife—Complete (CR)
- 213 Predict a lunar phenomenon (MC)
- 213 Predict and explain a weather pattern due to collision of air masses—Partial (CR)
- 210
- 208 Explain the formation of a rock based on its features—Essential (CR)
- 203 Select and explain the useful properties of a material used in an industrial process—Complete (CR)
- 201 Relate characteristics of air masses to global regions (MC)
- 200 Select and explain graph types and draw graphs from data that compare insect behaviors—Partial (CR)
- 200 Identify the main source of energy for certain organisms (MC)
- 200
- 198 Identify the atomic components of the molecule (MC)
- 195 Determine a controlled variable in a chemistry investigation (MC)
- 190 Identify a source of energy for Earth's water cycle (MC)
- 190
- 187 Predict the long-term pattern in the volcanic activity of a region (MC)
- 184 Recognize an effect of electrical forces (MC)
- 184 Explain the formation of a rock based on its features—Partial (CR)
- 183 Recognize that plants produce their own food (MC)
- 182 Select and explain the useful properties of a material used in an industrial process—Essential (CR)
- 180 Form a conclusion based on data about the behavior of an organism—Partial (CR)
- 180
- 175 Draw a conclusion about soil permeability using data—Partial (CR)
- 174 Describe the competition between two species—Complete (CR)
- 171 Identify a function of a human organ system (MC)
- 171 Investigate the magnetic properties of some common objects (MC)
- 170 **Proficient**
- 170
- 167 Describe the evidence for chemical change—Partial (CR)
- 165 Describe the energy transfer between two systems—Complete (CR)
- 162 Read a motion graph (MC)
- 160
- 157 Draw a conclusion based on fossil evidence (MC)
- 156 Select and explain the useful properties of a material used in an industrial process—Partial (CR)
- 153 Predict a geological consequence of tectonic plate movement (MC)
- 151 Identify the mechanism of a weather pattern (MC)
- 150
- 148 Recognize a factor that affects the success of a species (MC)
- 141 **Basic**
- 140
- 136 Identify the sequence of formation of the Earth's features (MC)
- 134 Identify an example of kinetic energy (MC)
- 131 Predict the effect of an environmental change on an organism (MC)
- 130
- 128 Explain an experimental setup to study populations of organisms (MC)
- 127 Recognize how plants use sunlight (MC)
- 122 Explain the effects of human land use on wildlife—Partial (CR)
- 120
- 0

Content Classifications:

Earth & Space Sciences

Physical Science

Life Science

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment.

NAEP Questions Tool

The questions in the NAEP Questions Tool are presented for the use of teachers, parents, students, and others as: (1) examples of what NAEP asks students at grades 4, 8, and 12 for main NAEP, and at ages 9, 13, and 17 for long-term trend; (2) exemplars of questions that probe students' knowledge of a specific content area; and (3) a way to compare an individual's performance on a specific question to that of the students across the nation and in the state. For more information, visit <http://nces.ed.gov/nationsreportcard/itmrlsx/landing.aspx>

NAEP Item Maps

Item maps help to illustrate what students know and can do in NAEP subject areas by positioning descriptions of individual assessment items along the NAEP scale at each grade level. An item is placed at the point on the scale where students are more likely to give successful responses to it. The descriptions used in NAEP item maps focus on the knowledge and skills needed to respond successfully to the assessment item. For more information, visit <http://nces.ed.gov/nationsreportcard/itemmaps/index.asp>

Interactive Computer Tasks (ICTs)

These tasks presented students with computer-based environments where students were asked to solve authentic scientific problems. There are nine released ICTs available to the public. For more information, visit http://nationsreportcard.gov/science_2009/ict_tasks.asp

Hands-On Tasks (HOTs)

These tasks gave students real-world contexts where students were asked to demonstrate how well they are able to plan and conduct scientific investigations, reason through complex problems, and apply their scientific knowledge. There are three released HOTs available to the public. For more information, visit <http://www.youtube.com/watch?v=6RNpps7zdIE&list=PLkEhwZQdyNEEF3ayHdyekweX7DyF3AwB&index=5>

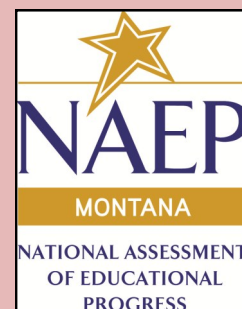
Introducing NAEP to Teachers

Educators explaining the importance of NAEP, the relevance of NAEP and how it applies to teachers. For more information, visit http://www.youtube.com/watch?v=zR1_pUdSIFg&list=PLkEhwZQdyNEEF3ayHdyekweX7DyF3AwB&index=1

Create your own NAEP test and see what students know and can do. For more information, visit <http://nationsreportcard.gov/educators.asp>

NAEP Webpage: <http://opi.mt.gov/Reports&Data/NAEP.html>

NAEP Wiki: <http://opi.mt.gov/groups/montananaep/>



NAEP items can be used as a helpful educational resource in the classroom. Teachers can use the NAEP Questions Tool to see how students' performance compares on specific items. You can also request any information or specific research data from your NAEP State Coordinator, **Ashley McGrath** at amcgrath@mt.gov.